



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,756	07/09/2002	Michael R. Krause	10003627-2	4251

22879 7590 11/10/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

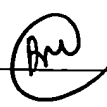
PARK, JUNG H

ART UNIT PAPER NUMBER

2661

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/980,756	Applicant(s) KRAUSE ET AL.	
	Examiner Jung Park	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 9, 28, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogishi et al. (U.S. 6,178,450, "Ogishi").

Regarding claims 1 and 28, Ogishi discloses, "a data processing system comprising:

- a source device (*system A fig.7*) having a first source application instance (AI) (*not shown fig.7 where one of TCP/IP applications such as telnet or HTTP*) producing a first unit of work stream (*serial output packets from multiplexer in system A fig.7*);
- a destination device (*system C fig.7*) having at least one destination AI (*not shown fig.7*) which consumes units of work (*processing the received data packets from the first unit*);
- communication services/fabric (*4 & 5 fig.7*) providing communication between the source device and the destination device;
- a first source and destination resource (SDR) (*source and destination port numbers as a 2-tuple fig.4; col.5, lines 5-9*) implementing a first reliable datagram service (*col.6, lines 26-27 TCP provides a reliable stream delivery service; port number 23 for telnet service as an instance*) between the source device and the destination device and transmitting a first portion (*a truncated output packet with a sequence number fig.4*) of the first unit of work stream over the communication services/fabric and guaranteeing strong ordering (*sequence number fig.4; col.5,*

Art Unit: 2661

line 51-col.6, line 23 sequence procedure is descried in detail) of the first portion of the first unit of work stream received at the destination device; and

- a second SDR (*source and destination port numbers as a second 2-tuple*) implementing a second reliable datagram service (*col.6, lines 26-27 TCP provides a reliable stream delivery service; a second port number 80 for WWW service as an instance*) between the source device and the destination device and transmitting a second portion (*a truncated output packet with next sequence number*) of the first unit of work stream over the communication services/fabric and guaranteeing strong ordering of the second portion of the first unit of work stream received at the destination device."

Regarding claims 9 and 36, Ogishi discloses, "the source device also functions as a destination device and the destination device also functions as a source device (see arrows in systems A and C fig.1)."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 10, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishi.

Regarding claims 8 and 35, Ogishi fails to teach that the first portion of the first unit of work stream and the second portion of the first unit of work stream are consumed by one

destination AI. However, the examiner takes an official notice that the two truncated packets having a same destination port number are consumed by one destination application.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to know that two truncated packets having a same destination port number reach the same service application in the destination unit.

Regarding claim 10, it is claim about multiplexing for serial packet output streams and demultiplexing of the serial packet stream at the destination unit. Ogishi is silent on the mux/demux units although it is old and well known in the computer communication art to employ mux/demux for processing data packets. However, the examiner takes an official notice that the mux/demux units are located in the source and destination systems in order to take several separate digital data streams and combine them together into one data stream of a higher data rate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the mux/demux units into Ogishi's system. The motivation is to allow for multiple data streams to be carried from one place to another over one physical link, which saves cost. The demultiplexer is for providing the packet streams to one of the applications at the destination unit.

5. Claims 2-7 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishi in view of Ruszczyk (US 6,205,150, "Ruszczyk").

Regarding claims 2 and 29, Ogishi lacks what Ruszczyk discloses, "the first SDR is assigned a first priority level (higher priority 62 fig.4) for effecting throughput and response time of units of work (col.2, lines 27-30) transmitted by the first SDR and the second SDR is assigned

a second priority level (lower priority 66 fig.4) for effecting throughput and response time (col. 2, lines 27-30) of units of work transmitted by the second SDR.”

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the priority assigning feature to the data packet processing system of Ogishi since one would be motivated to assign the priority level to packets in order to provide QoS for optimizing data transmission delay and further for saving throughput.

Regarding claims 3 and 30, Ogishi teaches a third SDR implementing at least a third reliable datagram service (different source and protocol numbers as a third 2-tuple) between the source device and the destination device. However, Ogishi lacks what Ruszczyk teaches, “wherein the SDRs are grouped into multiple SDR groups (different queue group fig.4), wherein each of the multiple SDR groups includes at least one SDR (a different service application) and is assigned a unique priority level (assigning priority 68 fig.4) for effecting throughput and response time of units of work (col.2, lines 27-30) transmitted by the at least one SDR.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the SDR group feature taught by Ruszczyk to the data packet processing system of Ogishi since one would be motivated to group the SDRs in order to provide QoS for optimizing data transmission delay and further for saving throughput.

Regarding claims 4, 5, 6, and 7, all of the claims are about scheduling for SDR groups. Ogishi fails to teach on the scheduling. However, Szwerinski teaches that the weighted round-robin scheduling method is described in col. 5, lines 37-44 and all the claim limitations like scheduling, scheduling policy, round-robin scheduling, and weighted round-robin scheduling methods are described in here.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include the scheduling policies to the data packet processing system of Ogishi since one would be motivated to include the scheduling policies in order to provide QoS for a different service/client.

Regarding claims 31-34, they are claims corresponding to claims 4-7 and are therefore rejected for the similar reasons set forth in the rejection of claims 4-7.

6. Claims 11-15, 17-27, 37-44, and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishi in view of Szwerinski et al., U.S. 5,517,668 ("Szwerinski").

Regarding claims 11 and 37, Ogishi lacks what Szwerinski discloses, "the destination SDR resources provide a negative acknowledgement (NAK) for a unit of work received ahead of its defined order (col. 39, lines 35-37)." Szwerinski teaches that it is old and well known in the TCP/IP network art to send the NAK message to a source unit when a destination unit receives a packet ahead of its defined order.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to know that the destination SDR sends NAK message to the sender when the destination SDR receives a packet ahead of its defined order. The motivation is to follow the TCP protocol since it is a convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints.

Regarding claims 12 (38) and 13 (39), Ogishi lacks what Szwerinski discloses, "the source SDR resources respond to the NAK to retransmit all unacknowledged units of work (col.

39, lines 29-31).” This claim is rejected for the similar reasons and motivation set forth in the rejection of claim 11.

Regarding claims 14, 40, and 41, Ogishi lacks what Szwerinski discloses, “the destination SDR resources silently drop a unit of work received ahead of its defined order (col. 39, line 29).” Szwerinski teaches that it is old and well known in the TCP/IP network art to know that the useless packets are dropped in order to reduce the size of queue length.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to apply the known knowledge of dropping packets taught by Szwerinski to the packet processing system of Ogishi in order to save the memory for queuing unit in the network system.

Regarding claims 15 and 44, Ogishi discloses, “The destination SDR resources provide a positive acknowledgement (ACK) for each unit of work which is successfully received and processed by the destination SDR resources (SYN+ACK fig.7).”

Regarding claim 17, Ogishi discloses, “each unit of work in the serial unit of work stream transmitted from the source SDR resources includes a protocol header (TCP Header 16 fig.2) containing fields employed by the communication services/fabric (layer 3 and 2 fields fig.2) to target the at least one destination AI (one of destination applications); the protocol header includes a SDR sequence number field (sequence number fig.4) indicating the defined order of its corresponding unit of work; and the destination SDR resources (destination port number fig.4) include an expected next sequence number value indicating an expected defined order corresponding to the next unit of work to be received (col.6, lines 12-13).”

Regarding claims 18-27, they are claims about the processing of sequence number when the destination receives a packet having wrong sequence number. Ogishi teaches all inner parameters on sending/receiving sequence in col.5, line 50-col.6, 23. Szwierinski further describes the detailed procedure of the sequence number processing in col. 39, lines 27-48. Therefore, they are rejected for the similar reasons set forth in the rejection of claim 11.

Regarding claims 42 and 43, they are claims corresponding to claims 26 and 27, respectively and are therefore rejected for the similar reasons set forth in the rejection of claims 26 and 27.

Regarding claims 46-48, they are claims corresponding to claims 18-20 and are therefore rejected for the similar reasons set forth in the rejection of claims 18-20.

7. Claims 16 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishi in view of Lakshman et al. (US 6,078,564, "Lakshman").

Regarding claims 16 and 45, Ogishi does not explicitly teach about a cumulative ACK for a set of units of work.

However, Lakshman discloses, "the destination SDR resources provide a cumulative positive acknowledgement (ACK) for a set of units of work that indicate that all units of work in the set of units of work up to and including a current unit of work have been successfully received and processed by the destination SDR resources (col.1, lines 38-46)."

This claim is therefore rejected for the similar reasons and motivation set forth in the rejection of claim 11.

Conclusion

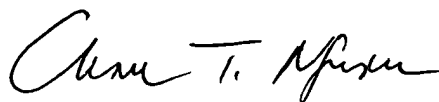
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung Park whose telephone number is 571-272-8565. The examiner can normally be reached on Mon-Fri during 7:10-4:40.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP

Jung Park
Patent Examiner
Art Unit 2661
November 7, 2005



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600